

EXHIBIT 83

REDACTED

gTrade Team Background

- gTrade team created Q2'13 to optimize GDN bidding on exchanges (AdX, AWBID, ...)
 - Team: [REDACTED]
 - Other contributors: [REDACTED]
- Prior work on AdX
 - Bid capping to prevent clawback (launched)
 - Dynamic revshare + throttling (launched)
 - pCTR model for revenue/payout calibration (launched, adding features)
- Current work (this presentation)
 - Improving AdX match rate (currently ~[REDACTED])
 - Increasing GDN profit on AdX pubs
 - Increasing AdX publisher revenue

Profit Optimization Outline

- . Main Idea of "Project Bernanke"
- . Simulation
- . Publisher Considerations
- . Advertiser Considerations
- . Legal Considerations
- . Current Status
- . Future Considerations

GDN on AdX Profit Optimization (Project Bernanke)

Goal: Max GDN profit while maintaining second price auction + 14% margin
(Revisit these constraints in later discussion slide)

3 key observations of current system:

- [REDACTED]
 - [REDACTED]
 - [REDACTED]
- [REDACTED]
- [REDACTED]
 - [REDACTED]
 - [REDACTED]

Proposal:

- Increase first bid (CAT2 winner) & decrease second bid to AdX (next slide)
 - Spends the budget unconstrained \$ on unmatched + lost queries
- Does not change pCTR, CAT2 auction, advertiser costs

Simple Example

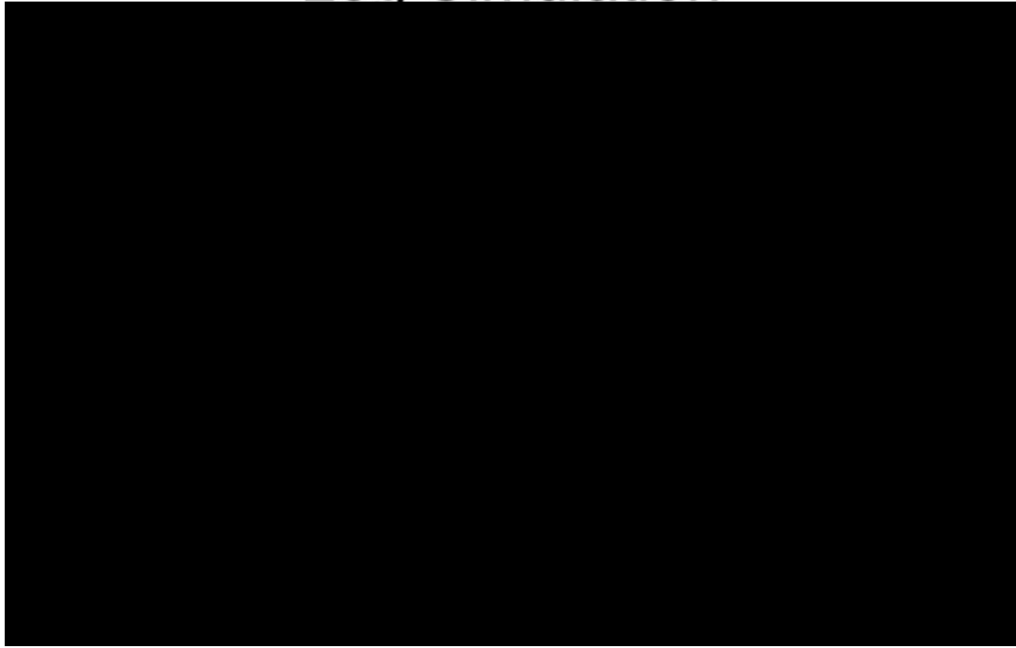
Current bidding strategy: 14% margin on each query

Bucket	AdWords Revenue	GDN Share	AdX + Pub Share
GDN wins	\$100	\$14	\$86
GDN loses	\$X (all unspent)	\$0	\$0
Total	\$100	\$14	\$86

Proposed bidding strategy: 14% margin over all queries

Bucket	AdWords Revenue	GDN Share	AdX + Pub Share
GDN was winning + drop 2nd bid	\$100	\$57	\$43
GDN previously lost + raise 1st bid	\$X (spend \$20)	-\$40.2	\$60.2
Total	\$120	\$16.8 (=14%)	\$103.2 (=86%)

Log Simulation



Publisher Considerations

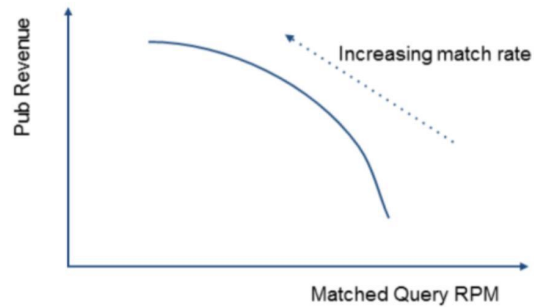
- 14% margin across all pubs or per pub?
 - We suggest per pub
 - Ensures "fair" payout to each pub
 - \$100 revenue on Pub k, should pay \$86 to Pub k + AdX

- How do publishers view & care about performance?
 - Consider boosting pub revenue 35%:

Ad Slot	Before: Rev, Match Queries, RPM	After: Rev, Match Queries, RPM	Observed Effect
1	\$100, 100k, \$1.00	\$50, 100k, \$0.50	RPM -50%, Match Q +0%
2	\$100, 100k, \$1.00	\$220, 200k, \$1.10	RPM +10%, Match Q +100%
Total	\$200, 200k, \$1.00	\$270, 300k, \$0.90	RPM -10%, Rev +35%, Match Q +50%

- (Note RPM = revenue / 1000 **matched** queries)
- Would revenue, traffic, RPM shifts across adslots cause problems?
- Revenue vs RPM tradeoff (next slide)

Potential Issue on Some Pubs



- All points on this curve have "fair" publisher payout
- Where to operate? Any reason for < max revenue?
- Could low RPM hurt Google long-term if
 - Pub moves AdX backfill lower in priority vs other exchanges/networks
 - Motivates pub moving to another exchange
 - Impacts yield managers

Advertiser Considerations

- 14% per advertiser or across all advertisers?
 - [REDACTED]
 - Gives more flexibility in optimization
- Don't increase bids for budget constrained advertisers
- Short term performance (before AdX buyers adapt)
 - Queries GDN was already winning
 - GDN still wins these queries
 - Advertiser cost unchanged, based on second price auction
 - CPD is unchanged
 - Queries GDN wins because of increased bids
 - Advertiser pays first price (same as dynamic revshare)
 - Only budget unconstrained advertisers will win these queries
 - CPD may be +ve or -ve depending on the new inventory

Redacted - Privilege

Current Status

Q2 2013

- Get approval from GDN directors, [REDACTED]
- Discussions with AdX Eng + PM for insights
- Finalize simulations and profit optimization design
- Proof-of-concept experiments

Q3 2013

- Coding
- Lot of experiments, perhaps whitelist of pubs
- Launch and iterate...

Future Considerations

Based on discussions with [REDACTED] and others.

Ecosystem Inefficiencies

- Why are pubs setting high reserve prices, leading to the unmatched queries? What makes other exchanges more attractive than AdX?
- Why do advertisers have unspent budget, and they don't simply raise their bids? What makes other DSPs more attractive than GDN?

"Co-Opetition"

- "Growing the pie" should lead to better outcomes for all parties
- We are bringing new unspent ad budget into the ecosystem

- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
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Appendix

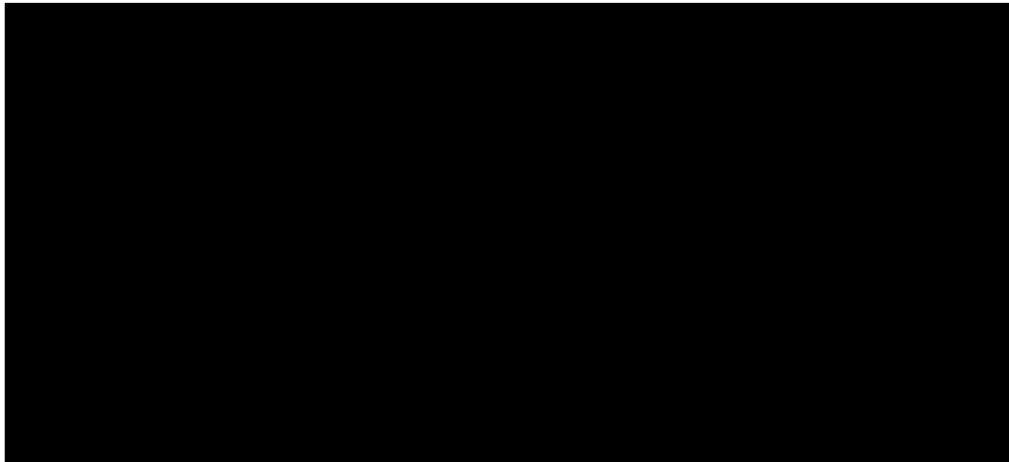
More background

Some initial optimization schemes

"Fair" Publisher Payout

- Want GDN to pay "fair" share to AdX (no arbitrage)
- Makes sense only if **aggregated across queries**
 - GDN pays AdX pubs per every query (CPM)
 - GDN only earns CPC on some queries
- Need to define a suitable domain for aggregation, e.g.
 - [web property x week]
 - [ad slot x hour]
 - [web property x \$1000 revenue]
- Fairness (v1): Over the chosen domain, ensure
 - $(\text{GDN payout to exchange}) / (\text{GDN revenue}) \geq 0.86$

Example pub RPM-Revenue plots







Simulation with 35% Budget Throttling



Appendix II

Related docs

[GDN bidding on AdX](#) (AC Privileged)

[Thoughts on Second Bid](#)

[AdSense vs AdX](#)

[Dynamic Rev Share](#)

[eCPM capping](#)

[Impact of artificial pCTR reduction](#)